



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/747,670	12/30/2003	Harry Hedler	543822003800	1556

25227 7590 05/04/2005
MORRISON & FOERSTER LLP
1650 TYSONS BOULEVARD
SUITE 300
MCLEAN, VA 22102

EXAMINER

LEE, GRANVILL D

ART UNIT PAPER NUMBER

2891

DATE MAILED: 05/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

SM

Office Action Summary

Application No.

10/747,670

Applicant(s)

HEDLER ET AL.

Examiner

Granvill D. Lee Jr

Art Unit

2891

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 June 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 12/30/2004
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION***Drawings***

Figure 4 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-8 and 11-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Myers et al. (US. Pat. 5,400,950) in view of Wennemuth et al (US. Pub. 2003/0030143).

In view of these claims (esp. 1 and 10), Myers et al. discloses a teaching where a method for connecting an substrate (Fig. 2 #10), comprising: an integrated circuit (#12) to a providing a package for the integrated circuit, which has a connection side, on which there are provided a plurality of connection regions (#22) for connection to the substrate. Myers et al. includes providing on the substrate, a plurality of connection regions providing elevated contact (#16) regions on the connection regions of the package and/or the connection regions (Col. 3 lines 10-20) of the substrate. The elevated contact regions comprise a first group of contact regions (#16) and a second group of contact regions (#20) and creating a connection of the package to the substrate via the elevated contact regions, the elevated contact regions configured such that the first group and the second group of contact regions form between the package and the substrate (Abstr.). Myers point out that one the two groups of contacts have the important function of providing rigid support (Col. 7 lines 34-42) to the structure, but fails to mention explicitly the function of flexibility of the other contact group. However, Wennemuth et al. uses a stacked component method where the plastic isolating groups of contacts (Fig. 1 #7) are present to assist in flexibility and elasticity of the electronic structure.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the elevated contact teachings of Myers et al. with the express purpose of contact flexibility teachings of Wennemuth et al. Wennemuth et al. consider an invention where flexibility

Art Unit: 2891

could be available in a versatile design where the flexible element could be a film, a plastic carrier or a isolating body (Fig. 1 #7, #10,#14), but also have a ability to remove stress and easily serviceable should defects become present (Para. 16).

In view of claims 2 and 12, Wennemuth et al. discloses both groups of contacts where the first group (#4) lies inside the second group (#7) of contacts, both groups surrounding a central point in the device structure (#26).

In viewing claims 3 and 13, the central point of Wennemuth et al. lies in the structural center of the electronic device package (#26).

In view of claims 4 and 14, Wennemuth et al. suggests that the first inner groups of contacts are soldering contact pads/balls (#4) and the outer group (#7) are plastic or other material (Para. 16).

In regard to claims 5 and 15, Wennemuth et al. mentions that the plastic group of contacts are made of polymer (Para 93) or adhesive (Para. 79).

In view of claims 6 and 16, Wennemuth et al. discloses that the plastic contacts can include solderable coatings (Para. 22).

In regard to claims 7 and 17, Wennemuth et al. discloses that the plastic group of contacts are made of polymers which are isolating or non-conducting elements (Para. 93).

In view of claims 8 and 18, Wennemuth et al. depicts an interposer (#3) as a rewired body on the topside of an active chip (Para. 92).

Claims 9-10 and 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Myers et al. (US. Pat. 5,400,950) in view of Wennemuth et al (US. Pub. 2003/0030143) in further view of Smith et al. (US. Pat. 6,130,116).

In view of these claims, Myers et al. includes providing on the substrate, a plurality of connection regions providing elevated contact (#16) regions on the connection regions of the package and/or the connection regions (Col. 3 lines 10-20) of the substrate. The elevated contact regions comprise a first group of contact regions (#16) and a second group of contact regions (#20) and creating a connection of the package to the substrate. Wennemuth et al. uses a stacked component method where the plastic isolating groups of contacts are present to assist in flexibility and elasticity of the electronic structure. But both inventors fails to support the notion of an insulation layer on the packaged circuit and an encapsulation material encompassing the integrated packaged device. Smith et al. utilizes a technique where both a front side insulation layer (#232) and a rear sided encapsulating material (#40) are used in completing a packaged device.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the packaged circuits of both Myers and Wennemuth et al. in favor of the encapsulating device of Smith et al. for the combined purpose of assess and connectibility to other parts of the device (Col. 8 lines 43-60). Smith et al. sought to make a device where connection to terminals and other devices was a priority (Col. 3 lines 23-35), by using a

Art Unit: 2891

dielectric layer the device could be flexible and still connect device together effectively (Col. 8 lines 43-60), by encapsulating this region protection of this and other important regions is now affirmed (Col. 2 line 50-Col. 3 line 20).

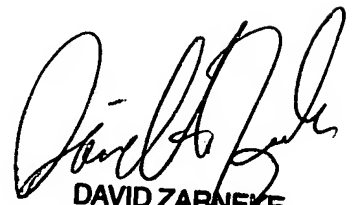
Contact Information

Any inquiry concerning this communication or earlier communications for the examiner should be directed to Granvill Lee whose telephone number is (571) 272-1897. The examiner can be normally reached on Monday thru Friday from 8:00 am to 4:30 pm.

If attempts to reach the examiner by telephone are not successful, the examiner's supervisor, Bill Baumeister can be reached on (571) 272-1722. The fax phone number for this group is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Examiner
Granvill Lee
Art Unit 2891


DAVID ZARNEKE
PRIMARY EXAMINER
4/29/05